WHAT IS CLAIMED IS:

1. A method for enhancing a digital image comprising:

providing a digital original image comprised of a plurality of pixels, wherein each pixel includes an original value corresponding to a characteristic of the image;

calculating a dynamic image mask value for each pixel by averaging the original value of a pixel with the original values of the pixels proximate that pixel having original values lower than a threshold sharpness; and

applying the dynamic image mask value to the original value for each corresponding pixel using a mathematical function to produce an enhanced image.

2. The method of Claim 1, wherein providing a digital original image comprises capturing a digital original image using a digital capture device.

3. The method of Claim 1, wherein providing a digital original image comprises capturing a digital original image using an imaging system.

4. The method of Claim 1, wherein the original value corresponding to a characteristic of the image comprises an intensity value corresponding to a color.

5. The method of Claim 1, wherein the original value corresponding to a characteristic of the image comprises an intensity value corresponding to range of frequencies.

6. The method of Claim 1, wherein averaging the original value of a pixel with only the original values of the pixels proximate that pixel having original values less than a sharpness threshold comprises averaging the original value of a pixel with only the weighted original values of the pixels proximate that pixel having original

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5   values less than a sharpness threshold.

1   7.   The method of Claim 6, wherein the weighted original values are
2   determined according to the following formula:

3

4
$$w_N = \left(1 - \left|\frac{pixelN - centerpixel}{Gain}\right|\right),$$

5   wherein pixelN is the value of the pixel being weighed, center pixel is the
6   value of a central pixel, and wherein Gain is the threshold sharpness.

1   8.   The method of Claim 1, wherein the original values used to calculate
2   the difference less than the sharpness threshold correspond to different characteristics
3   than the original values used in averaging.

1   9.   The method of Claim 1, wherein calculating a dynamic image mask
2   value includes performing a pyramidal decomposition on the original image.

1   10.   The method of Claim 1, wherein the mathematical function comprises
2   division.

1   11.   The method of Claim 1, wherein the mathematical function comprises:

2
$$OUT = \frac{IN}{\frac{3}{4}MASK + \frac{1}{4}},$$

3   wherein OUT is the value of the pixel being calculated in the enhanced
4   scanned image,   IN is the value of the relative pixel in the original image, and

5   MASK is the value of the relative pixel in the dynamic image mask.

1   12.   The method of Claim 1, further comprising performing histogram
2   leveling to the enhanced scanned image.

1   13.   The method of Claim 1, wherein the enhanced scanned image includes
2   an image contrast and a grayscale contrast.

1   14.   The method of Claim 13, wherein the image contrast and the grayscale
2   contrast can be controlled independently of each other.

1   15.   The method of Claim 1, wherein the dynamic image mask value may
2   be proportionally varied by a user.

1   16.   A system comprising:
2   a sensor system operable to produce electronic signals corresponding to certain
3   characteristics of a subject;
4   a processor operable to receive the electronic signals and produce image
5   values for each pixel; and
6   a memory media having software stored thereon, wherein the software is
7   operable to:
8   calculate a dynamic image mask value for each pixel by averaging the
9   image value of a pixel with the image values of the pixels proximate that pixel
10   having image values lower than a threshold sharpness; and
11   apply the dynamic image mask value to the image value for each
12   corresponding pixel using a mathematical function to produce an enhanced
13   image.

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1   17.   The system of Claim 16, wherein the sensor system operates to
2   measure light from the subject.

1   18.   The system of Claim 16, wherein the sensor system operates to
2   measure a magnetic resonance pulse.

1   19.   The system of Claim 16, further comprising a printer operable to print
2   the enhanced image.

1   20.   The system of Claim 19, wherein the printer comprises a photographic
2   printer.

1   21.   The system of Claim 16, further comprising a digital output device
2   operable to store the enhanced image.

1   22.   The system of Claim 16, wherein the system comprises a digital device
2   within the group of a digital camera and a video camera.

1   23.   The system of Claim 16, wherein the system comprises an imaging
2   system within the group of a magnetic resonance imaging system and a radar system.

1   24.   The system of Claim 16, wherein the software is loaded into an image
2   capturing device.

1   25.   The system of Claim 16, wherein the system comprises a printer
2   device.

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1   26.   A software tangibly embodied in a computer readable medium, said

2   software operable to produce an enhanced image by implementing a method

3   comprising:

4   generating a dynamic image mask from a digital original image, the dynamic

5   image mask and the original image each comprising a plurality of pixels having

6   varying values, wherein the values of the plurality of dynamic image mask pixels are

7   set to form sharper edges corresponding to areas of more rapidly changing pixel

8   values in the original image and less sharp regions corresponding to areas of less

9   rapidly changing pixel values in the original image; and

10   combining the dynamic image mask with the original image to produce the

11   enhanced image.

1   27.   The software of Claim 26, wherein:

2   the original image includes an amount of image detail encoded in a

3   physically reproducible dynamic range; and

4   wherein the enhanced image includes an increased amount of detail encoded in

5   the physically reproducible dynamic range.

1   28.   The software of Claim 26, wherein combining the dynamic image

2   mask with the original image is performed through mathematical manipulation.

1   29.   The software of Claim 28, wherein the mathematical manipulation

2   includes division.

1   30.   The software of Claim 26, wherein the pixels in the dynamic image

2   mask are generated according to the equation,

3
$$OUT = \frac{IN}{\frac{3}{4}\,MASK + \frac{1}{4}} \, ,$$

4   wherein OUT is the value of the pixel being calculated in the enhanced image,

5   IN is the value of the relative pixel in the original image, and MASK is the value of

6   the relative pixel in the dynamic image mask.

1   31.   The software of Claim 26, further comprising histogram leveling.

1   32.   The software of Claim 26, wherein the value of a pixel in the dynamic

2   image mask is generated by averaging the value of a central pixel corresponding to the

3   pixel in the original image with weighted values of a plurality of neighboring pixels in

4   the original image.

1   33.   The software of Claim 32, wherein the weighting of the plurality of

2   neighboring pixels is dependant on a proximity of the neighboring pixels to the central

3   pixel and a contrast of the plurality of neighboring pixels to the central pixel.

1   34.   The software of Claim 26, wherein the weight of pixels in the dynamic

2   image mask is determined according to the following formula:

3
$$w_N = \left(1 - \left| \frac{pixelN - centerpixel}{Gain} \right| \right) \, ,$$

4   wherein pixelN is the value of the pixel being weighed, center pixel is the

5   value of the central pixel, and wherein Gain is a threshold contrast value for

6   determining a sharp edge.

1 35. The software of Claim 26, wherein the value of a pixel in the dynamic

2 image mask is generated based on a relationship of the value of a different

3 characteristic.

1 36. The software of Claim 26, wherein the generating the dynamic image

2 mask includes performing a pyramidal decomposition on the original image.

1 37. The software of Claim 26, wherein the software is resident on a

2 computer.

1 38. The software of Claim 26, wherein the software is resident on a digital

2 camera.

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1   39.   A system comprising:

2   an image sensor to convert light reflected from an image into information

3   representative of the image;

4   a processor;

5   memory operably coupled to said processor; and

6   a program of instructions capable of being stored in said memory and executed

7   by said processor, said program of instructions to manipulate said processor to:

8   obtain a dynamic image mask, the dynamic image mask and the

9   information representative of the image each including a plurality of pixels

10   having varying values, wherein the values of the plurality of dynamic image

11   mask pixels are set to form sharper edges corresponding to areas of more

12   rapidly changing pixel values in the original image and less sharp regions

13   corresponding to areas of less rapidly changing pixel values in the original

14   image; and

15   combine the image mask with the information representative of the

16   image to obtain a masked image.

1   40.   The system of Claim 39, further including a color decoder, operably

2   connected to said image sensor, to generate color information from the information

3   representative of the image.

1   41   The system of Claim 40, wherein said program of instructions are

2   executed on an output of said image sensor, and where a result of said executed

3   program of instructions are input to said color decoder.

1   42.   The system of Claim 39, further including a color management system,

2   operably connected to said color decoder, to process said color information.

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1   43.   The system of Claim 42, wherein said program of instructions are

2   executed on an output of said color decoder, and where a result of said executed

3   program of instructions are input to said color management system.

1   44.   The system of Claim 43, wherein said output of said color decoder is

2   information representative of a red portion of the image, a green portion of the image,

3   and a blue portion of the image.

1   45.   The system of Claim 42, further including a storage system, operably

2   connected to said color management system, to store the color information.

1   46.   The system of Claim 45, wherein said program of instructions are

2   executed on an output of said color management system, and where a result of said

3   executed program of instructions are input to said storage system.

1   47.   The system of Claim 39, further including a display, operable to

2   display a representation of the information representative of the image.

1   48.   The system of Claim 47, wherein said program of instructions are

2   executed on an output of a color management system, and where a result of said

3   executed program of instructions are input to said display.